

attcggctcg agttcacctg gtgctgcttt gacttcaggc tcttctcttct gccagctcc	60
gtcccaccca gcagcccgca gagaaaggag gcagctggca ccacactggg ctttggagac	120
actgcgggga ctgtggaccc caccctgctg cacggagctc ctgcaaaagc aaacctgaga	180
accttggggtc ctcccagcgc ccagcc atg ggg gaa ctg tgc cgc agg gac tcc	233
Met Gly Glu Leu Cys Arg Arg Asp Ser	
1 5	
gca ctc acg gca ctg gac gag gag aca ctg tgg gag atg atg gag agc	281
Ala Leu Thr Ala Leu Asp Glu Glu Thr Leu Trp Glu Met Met Glu Ser	
10 15 20 25	
cac cgc cac agg atc gta cgc tgc atc tgc ccc agc cgc ctc acc ccc	329
His Arg His Arg Ile Val Arg Cys Ile Cys Pro Ser Arg Leu Thr Pro	
30 35 40	
tac ctg cgc cag gcc aag gtg ctg tgc cag ctg gac gag gag gag gtg	377
Tyr Leu Arg Gln Ala Lys Val Leu Cys Gln Leu Asp Glu Glu Glu Val	
45 50 55	
ctg cac agc ccc cgg ctc acc aac agc gcc atg cgg gcc ggg cac ttg	425
Leu His Ser Pro Arg Leu Thr Asn Ser Ala Met Arg Ala Gly His Leu	
60 65 70	
ctg gat ttg ctg aag act cga ggg aag aac ggg gcc atc gcc ttc ctg	473
Leu Asp Leu Leu Lys Thr Arg Gly Lys Asn Gly Ala Ile Ala Phe Leu	
75 80 85	
gag agc ctg aag ttc cac aac cct gac gtc tac acc ctg gtc acc ggg -	521
Glu Ser Leu Lys Phe His Asn Pro Asp Val Tyr Thr Leu Val Thr Gly	
90 95 100 105	
ctg cag cct gat gtt gac ttc agt aac ttt agc ggt ctc atg gag aca	569
Leu Gln Pro Asp Val Asp Phe Ser Asn Phe Ser Gly Leu Met Glu Thr	
110 115 120	
tcc aag ctg acc gag tgc ctg gct ggg gcc atc ggc agc ctg cag gag	617
Ser Lys Leu Thr Glu Cys Leu Ala Gly Ala Ile Gly Ser Leu Gln Glu	
125 130 135	
gag ctg aac cag gaa aag ggg cag aag gag gtg ctg ctg cgg cgg tgc	665
Glu Leu Asn Gln Glu Lys Gly Gln Lys Glu Val Leu Leu Arg Arg Cys	
140 145 150	
cag cag ctg cag gag cac ctg ggc ctg gcc gag acc cgt gcc gag ggc	713
Gln Gln Leu Gln Glu His Leu Gly Leu Ala Glu Thr Arg Ala Glu Gly	
155 160 165	
ctg cac cag ctg gag gct gac cac agc cgc atg aag cgt gag gtt agc	761
Leu His Gln Leu Glu Ala Asp His Ser Arg Met Lys Arg Glu Val Ser	
170 175 180 185	
gca cac ttc cat gag gtg ctg agg ctg aag gac gag atg ctc agc ctc	809
Ala His Phe His Glu Val Leu Arg Leu Lys Asp Glu Met Leu Ser Leu	
190 195 200	

Fig. 1A

tcg ctg cac tat agc aat gcg ctg cag gag aag gag ctg gcc gcc tca	857
Ser Leu His Tyr Ser Asn Ala Leu Gln Glu Lys Glu Leu Ala Ala Ser	
205 210 215	
cgc tgc cgc agc ctg cag gag gag ctg tat cta ctg aag cag gag ctg	905
Arg Cys Arg Ser Leu Gln Glu Leu Tyr Leu Leu Lys Gln Glu Leu	
220 225 230	
cag cga gcc aac atg gtt tcc tcc tgt gag ctg gaa ttg caa gag cag	953
Gln Arg Ala Asn Met Val Ser Ser Cys Glu Leu Glu Leu Gln Glu Gln	
235 240 245	
tcc ctg agg aca gcc agc gac cag gag tcc ggg gat gag gag ctg aac	1001
Ser Leu Arg Thr Ala Ser Asp Gln Glu Ser Gly Asp Glu Glu Leu Asn	
250 255 260 265	
cgc ctg aag gag gag aat gag aaa ctg cgc tcg ctg act ttc agc ctg	1049
Arg Leu Lys Glu Glu Asn Glu Lys Leu Arg Ser Leu Thr Phe Ser Leu	
270 275 280	
gcg gag aag gac att ctg gag cag agc ctg gac gag gcg cgg ggg agc	1097
Ala Glu Lys Asp Ile Leu Glu Gln Ser Leu Asp Glu Ala Arg Gly Ser	
285 290 295	
cga cag gag ctg gtg gag cgc atc cac tcg ctg cgg gag cgg gcc gtg	1145
Arg Gln Glu Leu Val Glu Arg Ile His Ser Leu Arg Glu Arg Ala Val	
300 305 310	
gct gcc gag agg cag cga gag cag tac tgg gaa gag aag gaa cag acc	1193
Ala Ala Glu Arg Gln Arg Glu Gln Tyr Trp Glu Glu Lys Glu Gln Thr	
315 320 325	
ctg ctg cag ttc cag aag agt aag atg gcc tgc caa ctc tac agg gag	1241
Leu Leu Gln Phe Gln Lys Ser Lys Met Ala Cys Gln Leu Tyr Arg Glu	
330 335 340 345	
aag gtg aat gcg ctg cag gcc cag gtg tgc gag ctg cag aag gag cga	1289
Lys Val Asn Ala Leu Gln Ala Gln Val Cys Glu Leu Gln Lys Glu Arg	
350 355 360	
gac cag gcg tac tcc gcg agg gac agt gct cag agg gag att tcc cag	1337
Asp Gln Ala Tyr Ser Ala Arg Asp Ser Ala Gln Arg Glu Ile Ser Gln	
365 370 375	
agc ctg gtg gag aag gac tcc ctc cgc agg cag gtg ttc gag ctg acg	1385
Ser Leu Val Glu Lys Asp Ser Leu Arg Arg Gln Val Phe Glu Leu Thr	
380 385 390	
gac cag gtc tgc gag ctg cgc aca cag ctt cgc cag ctg cag gca gag	1433
Asp Gln Val Cys Glu Leu Arg Thr Gln Leu Arg Gln Leu Gln Ala Glu	
395 400 405	
cct ccg ggt gtg ctc aag cag gaa gcc agg acc agg gag ccc tgt cca	1481
Pro Pro Gly Val Leu Lys Gln Glu Ala Arg Thr Arg Glu Pro Cys Pro	
410 415 420 425	

Fig. 1B



tgc tgc ctg tct gtg aag gtc aac acg gac ggt tat aag agg cta ctc Cys Cys Leu Ser Val Lys Val Asn Thr Asp Gly Tyr Lys Arg Leu Leu 650 655 660 665	2201
cag gac ctg gag gcc aaa gtg gcg acc tcg ggg gac tca ttc tac atc Gln Asp Leu Glu Ala Lys Val Ala Thr Ser Gly Asp Ser Phe Tyr Ile 670 675 680	2249
cgg gtc aac ctg gcc atg gag ggc agg gcc aaa ggg gag ctg cag gtg Arg Val Asn Leu Ala Met Glu Gly Arg Ala Lys Gly Glu Leu Gln Val 685 690 695	2297
cat tgc aac gag gtc ctg cac gtc acc gac acc atg ttc cag ggc tgc His Cys Asn Glu Val Leu His Val Thr Asp Thr Met Phe Gln Gly Cys 700 705 710	2345
ggc tgc tgg cat gcc cac cgc gtg aac tct tac acc atg aag gat act Gly Cys Trp His Ala His Arg Val Asn Ser Tyr Thr Met Lys Asp Thr 715 720 725	2393
gcc gcg cac ggc acc atc ccc aac tac tcc agg gct cag cag cag ctc Ala Ala His Gly Thr Ile Pro Asn Tyr Ser Arg Ala Gln Gln Gln Leu 730 735 740 745	2441
ata gcc ctc atc cag gac atg act cag cag tgc acc gtg acc cgc aag Ile Ala Leu Ile Gln Asp Met Thr Gln Gln Cys Thr Val Thr Arg Lys 750 755 760	2489
cca tct tct ggg gga cca cag aag ctg gtc cgc atc gtc agt atg gac Pro Ser Ser Gly Gly Pro Gln Lys Leu Val Arg Ile Val Ser Met Asp 765 770 775	2537
aaa gcc aag gcc agc cct ctg cgt ttg tcc ttt gac agg ggc cag ttg Lys Ala Lys Ala Ser Pro Leu Arg Leu Ser Phe Asp Arg Gly Gln Leu 780 785 790	2585
gac ccc agc agg atg gag ggc tcc agc acg tgc ttc tgg gcc gag agc Asp Pro Ser Arg Met Glu Gly Ser Ser Thr Cys Phe Trp Ala Glu Ser 795 800 805	2633
tgc ctc acc ctg gtg ccc tat acc ctg gtg tgg ccc cat cga ccc gcc Cys Leu Thr Leu Val Pro Tyr Thr Leu Val Trp Pro His Arg Pro Ala 810 815 820 825	2681
cgg ccc cgg cct gtg ctc ctc gtg ccc agg gcg gtt ggg aag atc ctg Arg Pro Arg Pro Val Leu Leu Val Pro Arg Ala Val Gly Lys Ile Leu 830 835 840	2729
agc gag aaa ctg tgc ctc ctc caa ggg ttt aag aag tgc ctg gca gag Ser Glu Lys Leu Cys Leu Leu Gln Gly Phe Lys Lys Cys Leu Ala Glu 845 850 855	2777
tac ttg agc cag gag gag tat gag gcc tgg agc cag aga ggg gac atc Tyr Leu Ser Gln Glu Glu Tyr Glu Ala Trp Ser Gln Arg Gly Asp Ile 860 865 870	2825

Fig. 1D

atc cag gag gga gag gtg tcc ggg ggc cgc tgc tgg gtg acc cgc cat	2873
Ile Gln Glu Gly Glu Val Ser Gly Gly Arg Cys Trp Val Thr Arg His	
875 880 885	
gct gtg gag tcc ctc atg gaa aag aac acc cat gcc ctc ctg gac gtc	2921
Ala Val Glu Ser Leu Met Glu Lys Asn Thr His Ala Leu Leu Asp Val	
890 895 900 905	
cag ctg gac agt gtc tgc acc ctg cac agg atg gac atc ttc ccc atc	2969
Gln Leu Asp Ser Val Cys Thr Leu His Arg Met Asp Ile Phe Pro Ile	
910 915 920	
gtc atc cac gtc tct gtc aac gag aag atg gca aag aag ctc aag aag	3017
Val Ile His Val Ser Val Asn Glu Lys Met Ala Lys Lys Leu Lys Lys	
925 930 935	
ggc cta cag cgg ttg ggc acc tca gag gag cag ctc ctg gag gct gcg	3065
Gly Leu Gln Arg Leu Gly Thr Ser Glu Glu Gln Leu Leu Glu Ala Ala	
940 945 950	
agg cag gag gag gga gac ctg gac cgg gcg ccc tgt cta tac agc agc	3113
Arg Gln Glu Glu Gly Asp Leu Asp Arg Ala Pro Cys Leu Tyr Ser Ser	
955 960 965	
ctg gct cct gac ggc tgg agc gac ctg gac ggc ctg ctc agc tgt gtc	3161
Leu Ala Pro Asp Gly Trp Ser Asp Leu Asp Gly Leu Leu Ser Cys Val	
970 975 980 985	
cgc cag gcc atc gcc gac gag cag aag aag gtg gtg tgg acg gag cag	3209
Arg Gln Ala Ile Ala Asp Glu Gln Lys Lys Val Val Trp Thr Glu Gln	
990 995 1000	
agc ccc cga tga tgcaccgtgc cccttcccgg gactgtgggg gcttctgtgt	3261
Ser Pro Arg *	
gcctgttaat gcagtcctgt tctcagccc aggccctctt ggcacagctg tgggctcctt	3321
ggcacatgag gccggtcttc cccactggct ggggtctaac cttgaacctt caccacgtgc	3381
aggtcacaca cagtgaagcc acttgtaact gcacactttt ctgtggaaac atcttcaccc	3441
tttaccaggc ttggcatggt ctgaactgga aaccctgaga atgtttctgc agtaggacag	3501
gagggacatc ttcccatgcc ttccctagaa ccggaggccc cggacttctc tggaaaaccg	3561
cctgtctgca ggcccattc aaatctatgg gggctgcaat tcccttttac attttgatgt	3621
gtcaaaggct tttggagtga ccaaaagcac agaggcagcg ggtggggcgc ctgggtggtc	3681
cccaaggctg ctgccaccct tgcccggggc agaggcataa gccacatat gctgtgacgc	3741
tggccacctt ttctcagctt ctgaggctgc gatgcctcag gaactccagt ttacagagac	3801
cagtgtgttt acttgtaaat aaagcctctg ggtggtggag acggtacttt cagtgggtct	3861
gtgccccgtg gccctgtgc ctgttcgggtg ggggtgtccc agagaagcct ggcaccagta	3921
ccccgtcaa	3931

Fig. 1E

M G E L C R R D S A L T A L D E E T L W	20
ATG GGG GAA CTG TGC CGC AGG GAC TCC GCA CTC ACG GCA CTG GAC GAG GAG ACA CTG TGG	60
E M M E S H R H R I V R C I C P S R L T	40
GAG ATG ATG GAG AGC CAC CGC CAC AGG ATC GTA CGC TGC ATC TGC CCC AGC CGC CTC ACC	120
P Y L R Q A K V L C Q L D E E E V L H S	60
CCC TAC CTG CGC CAG GCC AAG GTG CTG TGC CAG CTG GAC GAG GAG GAG GTG CTG CAC AGC	180
P R L T N S A M R A G H L L D L L K T R	80
CCC CGG CTC ACC AAC AGC GCC ATG CGG GCC GGG CAC TTG CTG GAT TTG CTG AAG ACT CGA	240
G K N G A I A F L E S L K F H N P D V Y	100
GGG AAG AAC GGG GCC ATC GCC TTC CTG GAG AGC CTG AAG TTC CAC AAC CCT GAC GTC TAC	300
T L V T G L Q P D V D F S N F S G E S S	120
ACC CTG GTC ACC GGG CTG CAG CCT GAT GTT GAC TTC AGT AAC TTT AGC GGT GAG AGC TCC	360
D F D G L A G T S R N L R L L V T P G L	140
GAC TTT GAC GGT TTG GCA GGC ACT TCT AGG AAC CTC AGG CTC CTG GTA ACC CCA GGT CTC	420
M E T S K L T E C L A G A I G S L Q E E	160
ATG GAG ACA TCC AAG CTG ACC GAG TGC CTG GCT GGG GCC ATC GGC AGC CTG CAG GAG GAG	480
L N Q E K G Q K E V L L R R C Q Q L Q E	180
CTG AAC CAG GAA AAG GGG CAG AAG GAG GTG CTG CTG CGG CGG TGC CAG CAG CTG CAG GAG	540
H L G L A E T R A E G L H Q L E A D H S	200
CAC CTG GGC CTG GCC GAG ACC CGT GCC GAG GGC CTG CAC CAG CTG GAG GCT GAC CAC AGC	600
R M K R E V S A H F H E V L R L K D E M	220
CGC ATG AAG CGT GAG GTT AGC GCA CAC TTC CAT GAG GTG CTG AGG CTG AAG GAC GAG ATG	660
L S L S L H Y S N A L Q E K E L A A S R	240
CTC AGC CTC TCG CTG CAC TAT AGC AAT GCG CTG CAG GAG AAG GAG CTG GCC GCC TCA CGC	720
C R S L Q E E L Y L L K Q E L Q R A N M	260
TGC CGC AGC CTG CAG GAG GAG CTG TAT CTA CTG AAG CAG GAG CTG CAG CGA GCC AAC ATG	780
V S S C E L E L Q E Q S L R T A S D Q E	280
GTT TCC TCC TGT GAG CTG GAA TTG CAA GAG CAG TCC CTG AGG ACA GCC AGC GAC CAG GAG	840
S G D E E L N R L K E E N E K L R S L T	300
TCC GGG GAT GAG GAG CTG AAC CGC CTG AAG GAG GAG AAT GAG AAA CTG CGC TCG CTG ACT	900
F S L A E K D I L E Q S L D E A R G S R	320
TTC AGC CTG GCG GAG AAG GAC ATT CTG GAG CAG AGC CTG GAC GAG GCG CGG GGG AGC CGA	960
Q E L V E R I H S L R E R A V A A E R Q	340
CAG GAG CTG GTG GAG CGC ATC CAC TCG CTG CGG GAG CGG GCC GTG GCT GCC GAG AGG CAG	1020
R E Q A R P S E L L S F T V H V S H S V	360
CGA GAG CAG GCC AGA CCC TCA GAG CTG CTG AGC TTC ACG GTC CAT GTG TCC CAC TCT GTC	1080
Q Y W E E K E Q T L L Q F Q K S K M A C	380
CAG TAC TGG GAA GAG AAG GAA CAG ACC CTG CTG CAG TTC CAG AAG AGT AAG ATG GCC TGC	1140
Q L Y R E K V N A L Q A Q V C E L Q K E	400
CAA CTC TAC AGG GAG AAG GTG AAT GCG CTG CAG GCC CAG GTG TGC GAG CTG CAG AAG GAG	1200
R D Q A Y S A R D S A Q R E I S Q S L V	420
CGA GAC CAG GCG TAC TCC GCG AGG GAC AGT GCT CAG AGG GAG ATT TCC CAG AGC CTG GTG	1260
E K D S L R R Q V F E L T D Q V C E L R	440
GAG AAG GAC TCC CTC CGC AGG CAG GTG TTC GAG CTG ACG GAC CAG GTC TGC GAG CTG CGC	1320
T Q L R Q L Q A E P P G V L K Q E A R T	460
ACA CAG CTT CGC CAG CTG CAG GCA GAG CCT CCG GGT GTG CTC AAG CAG GAA GCC AGG ACC	1380

Fig. 2A

R	E	P	C	P	R	E	K	Q	R	L	V	R	M	H	A	I	C	P	R	480
AGG	GAG	CCC	TGT	CCA	CGG	GAG	AAG	CAG	CGG	CTG	GTG	CGG	ATG	CAT	GCC	ATC	TGC	CCC	AGA	1440
D	D	S	D	C	S	L	V	S	S	T	E	S	Q	L	L	S	D	L	S	500
GAC	GAC	AGC	GAC	TGC	AGC	CTC	GTC	AGC	TCC	ACA	GAG	TCT	CAG	CTC	TTG	TCG	GAC	CTG	AGT	1500
A	T	S	S	R	E	L	V	D	S	F	R	S	S	S	P	A	P	P	S	520
GCC	ACG	TCC	AGC	CGC	GAG	CTG	GTG	GAC	AGC	TTC	CGC	TCC	AGC	AGC	CCC	GCG	CCC	CCC	AGC	1560
Q	Q	S	L	Y	K	R	V	A	E	D	F	G	E	E	P	W	S	F	S	540
CAG	CAG	TCC	CTG	TAC	AAG	CGG	GTG	GCC	GAG	GAC	TTC	GGG	GAA	GAA	CCC	TGG	TCT	TTC	AGC	1620
S	C	L	E	I	P	E	G	D	P	G	A	L	P	G	A	K	A	G	D	560
AGC	TGC	CTG	GAG	ATC	CCG	GAG	GGA	GAC	CCG	GGA	GCC	CTG	CCG	GGA	GCT	AAG	GCA	GGC	GAC	1680
P	H	L	D	Y	E	L	L	D	T	A	D	L	P	Q	L	E	S	S	L	580
CCA	CAC	CTG	GAT	TAT	GAG	CTC	CTA	GAC	ACG	GCA	GAC	CTT	CCG	CAG	CTG	GAA	AGC	AGC	CTG	1740
Q	P	V	S	P	G	R	L	D	V	S	E	S	A	Q	A	G	R	L	P	600
CAG	CCA	GTC	TCC	CCT	GGA	AGG	CTT	GAT	GTC	TCG	GAG	AGT	GCA	CAA	GCC	GGT	CGT	CTC	CCG	1800
A	C	S	G	V	L	M	R	R	R	P	A	R	R	I	L	S	Q	V	T	620
GCC	TGC	AGC	GGC	GTC	CTC	ATG	CGG	CGG	AGG	CCA	GCC	CGC	AGG	ATC	CTG	AGC	CAG	GTC	ACC	1860
M	L	A	F	Q	G	D	A	L	L	E	Q	I	S	V	I	G	G	N	L	640
ATG	CTG	GCG	TTC	CAG	GGG	GAT	GCA	TTG	CTG	GAG	CAG	ATC	AGC	GTC	ATC	GGC	GGG	AAC	CTC	1920
T	G	I	F	I	H	R	V	T	P	G	S	A	A	D	Q	M	A	L	R	660
ACG	GGC	ATC	TTC	ATC	CAC	CGG	GTC	ACC	CCG	GGC	TCG	GCG	GCG	GAC	CAG	ATG	GCC	TTG	CGC	1980
P	G	T	Q	I	V	M	V	D	Y	E	A	S	E	P	L	F	K	A	V	680
CCG	GGC	ACC	CAG	ATT	GTG	ATG	GTT	GAT	TAC	GAA	GCC	TCA	GAG	CCC	TTG	TTC	AAG	GCA	GTC	2040
L	E	D	T	T	L	E	E	A	V	G	L	L	R	R	V	D	G	F	C	700
CTG	GAG	GAC	ACG	ACC	CTG	GAG	GAG	GCC	GTG	GGG	CTT	CTC	AGG	AGG	GTG	GAC	GGC	TTC	TGG	2100
C	L	S	V	K	V	N	T	D	G	Y	K	R	L	L	Q	D	L	E	A	720
TGC	CTG	TCT	GTG	AAG	GTC	AAC	ACG	GAC	GGT	TAT	AAG	AGG	CTA	CTC	CAG	GAC	CTG	GAG	GCC	2160
K	V	A	T	S	G	D	S	F	Y	I	R	V	N	L	A	M	E	G	R	740
AAA	GTG	GCG	ACC	TCG	GGG	GAC	TCA	TTC	TAC	ATC	CGG	GTC	AAC	CTG	GCC	ATG	GAG	GGC	AGG	2220
A	K	G	E	L	Q	V	H	C	N	E	V	L	H	V	T	D	T	M	F	760
GCC	AAA	GGG	GAG	CTG	CAG	GTG	CAT	TGC	AAC	GAG	GTC	CTG	CAC	GTC	ACC	GAC	ACC	ATG	TTC	2280
Q	G	C	G	C	W	H	A	H	R	V	N	S	Y	T	M	K	D	T	A	780
CAG	GGC	TGC	GGC	TGC	TGG	CAT	GCC	CAC	CGC	GTG	AAC	TCT	TAC	ACC	ATG	AAG	GAT	ACT	GCC	2340
A	H	G	T	I	P	N	Y	S	R	A	Q	Q	Q	L	I	A	L	I	Q	800
GCG	CAC	GGC	ACC	ATC	CCC	AAC	TAC	TCC	AGG	GCT	CAG	CAG	CAG	CTC	ATA	GCC	CTC	ATC	CAG	2400
D	M	T	Q	Q	C	T	V	T	R	K	P	S	S	G	G	P	Q	K	L	820
GAC	ATG	ACT	CAG	CAG	TGC	ACC	GTG	ACC	CGC	AAG	CCA	TCT	TCT	GGG	GGA	CCA	CAG	AAG	CTG	2460
V	R	I	V	S	M	D	K	A	K	A	S	P	L	R	L	S	F	D	R	840
GTC	CGC	ATC	GTC	AGT	ATG	GAC	AAA	GCC	AAG	GCC	AGC	CCT	CTG	CGT	TTG	TCC	TTT	GAC	AGG	2520
G	Q	L	D	P	S	R	M	E	G	S	S	T	C	F	W	A	E	S	C	860
GGC	CAG	TTG	GAC	CCC	AGC	AGG	ATG	GAG	GGC	TCC	AGC	ACG	TGC	TTC	TGG	GCC	GAG	AGC	TGC	2580
L	T	L	V	P	Y	T	L	V	R	P	H	R	P	A	R	P	R	P	V	880
CTC	ACC	CTG	GTG	CCC	TAT	ACC	CTG	GTG	CGG	CCC	CAT	CGA	CCC	GCC	CGG	CCC	CGG	CCT	GTG	2640
L	L	V	P	R	A	V	G	K	I	L	S	E	K	L	C	L	L	Q	G	900
CTC	CTC	GTG	CCC	AGG	GCG	GTT	GGG	AAG	ATC	CTG	AGC	GAG	AAA	CTG	TGC	CTC	CTC	CAA	GGG	2700
F	K	K	C	L	A	E	Y	L	S	Q	E	E	Y	E	A	W	S	Q	R	920
TTT	AAG	AAG	TGC	CTG	GCA	GAG	TAC	TTG	AGC	CAG	GAG	GAG	TAT	GAG	GCC	TGG	AGC	CAG	AGA	2760
G	D	I	I	Q	E	G	E	V	S	G	G	R	C	W	V	T	R	H	A	940
GGG	GAC	ATC	ATC	CAG	GAG	GGA	GAG	GTG	TCC	GGG	GGC	CGC	TGC	TGG	GTG	ACC	CGC	CAT	GCT	2820

Fig. 2B

V	E	S	L	M	E	K	N	T	H	A	L	L	D	V	Q	L	D	S	V	960
GTG	GAG	TCC	CTC	ATG	GAA	AAG	AAC	ACC	CAT	GCC	CTC	CTG	GAC	GTC	CAG	CTG	GAC	AGT	GTC	2880
C	T	L	H	R	M	D	I	F	P	I	V	I	H	V	S	V	N	E	K	980
TGC	ACC	CTG	CAC	AGG	ATG	GAC	ATC	TTC	CCC	ATC	GTC	ATC	CAC	GTC	TCT	GTC	AAC	GAG	AAG	2940
M	A	K	K	L	K	K	G	L	Q	R	L	G	T	S	E	E	Q	L	L	1000
ATG	GCA	AAG	AAG	CTC	AAG	AAG	GGC	CTA	CAG	CGG	TTG	GGC	ACC	TCA	GAG	GAG	CAG	CTC	CTG	3000
E	A	A	R	Q	E	E	G	D	L	D	R	A	P	C	L	Y	S	S	L	1020
GAG	GCT	GCG	AGG	CAG	GAG	GAG	GGA	GAC	CTG	GAC	CGG	GCG	CCC	TGT	CTA	TAC	AGC	AGC	CTG	3060
A	P	D	G	W	S	D	L	D	G	L	L	S	C	V	R	Q	A	I	A	1040
GCT	CCT	GAC	GGC	TGG	AGC	GAC	CTG	GAC	GGC	CTG	CTC	AGC	TGT	GTC	CGC	CAG	GCC	ATC	GCC	3120
D	E	Q	K	K	V	Q	R	R	R	H	P	R	I	N	P	S	Q	R	T	1060
GAC	GAG	CAG	AAG	AAG	GTG	CAA	CGC	CGA	CGT	CAT	CCA	AGA	ATT	AAC	CCA	AGC	CAG	AGG	ACG	3180
G	I	A	T	Q	Q	R	Q	C	H	R	R	I	N	P	R	Q	R	M	G	1080
GGC	ATC	GCC	ACC	CAG	CAA	CGC	CAG	TGT	CAC	CGA	AGA	ATT	AAC	CCA	AGG	CAG	AGG	ATG	GGC	3240
I	A	T	Q	Q	R	Q	C	H	R	R	I	N	P	S	Q	R	T	G	I	1100
ATT	GCC	ACC	CAG	CAA	CGC	CAG	TGT	CAC	CGA	AGA	ATT	AAC	CCA	AGC	CAG	AGG	ACG	GGC	ATC	3300
T	T	Q	Q	C	Q	C	H	R	R	I	N	P	S	Q	R	T	G	I	A	1120
ACC	ACC	CAG	CAA	TGC	CAG	TGT	CAC	CGA	AGA	ATT	AAC	CCA	AGC	CAG	AGG	ACG	GGC	ATC	GCC	3360
M	P	S	S	S	D	T	L	K	K	D	K	L	L	P	R	N	T	T		1139
ATG	CCT	TCA	TCT	TCG	GAC	ACT	CTC	AAA	AAA	GAT	AAG	CTT	CTG	CCC	AGA	AAC	ACC	ACA		3417

Fig. 2C



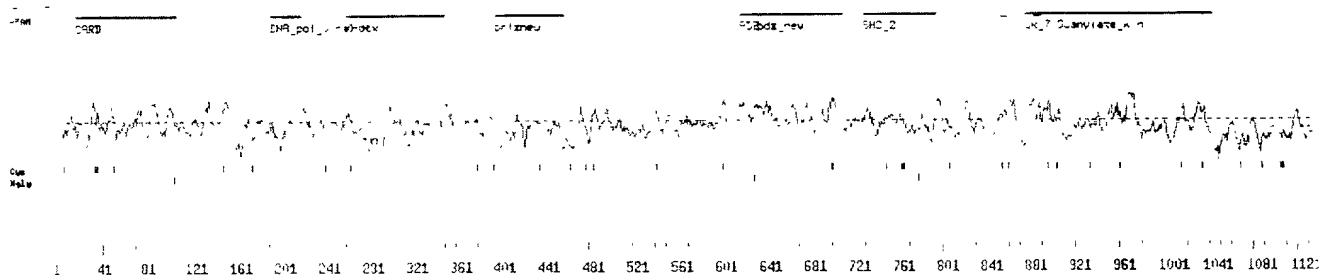


Fig.3

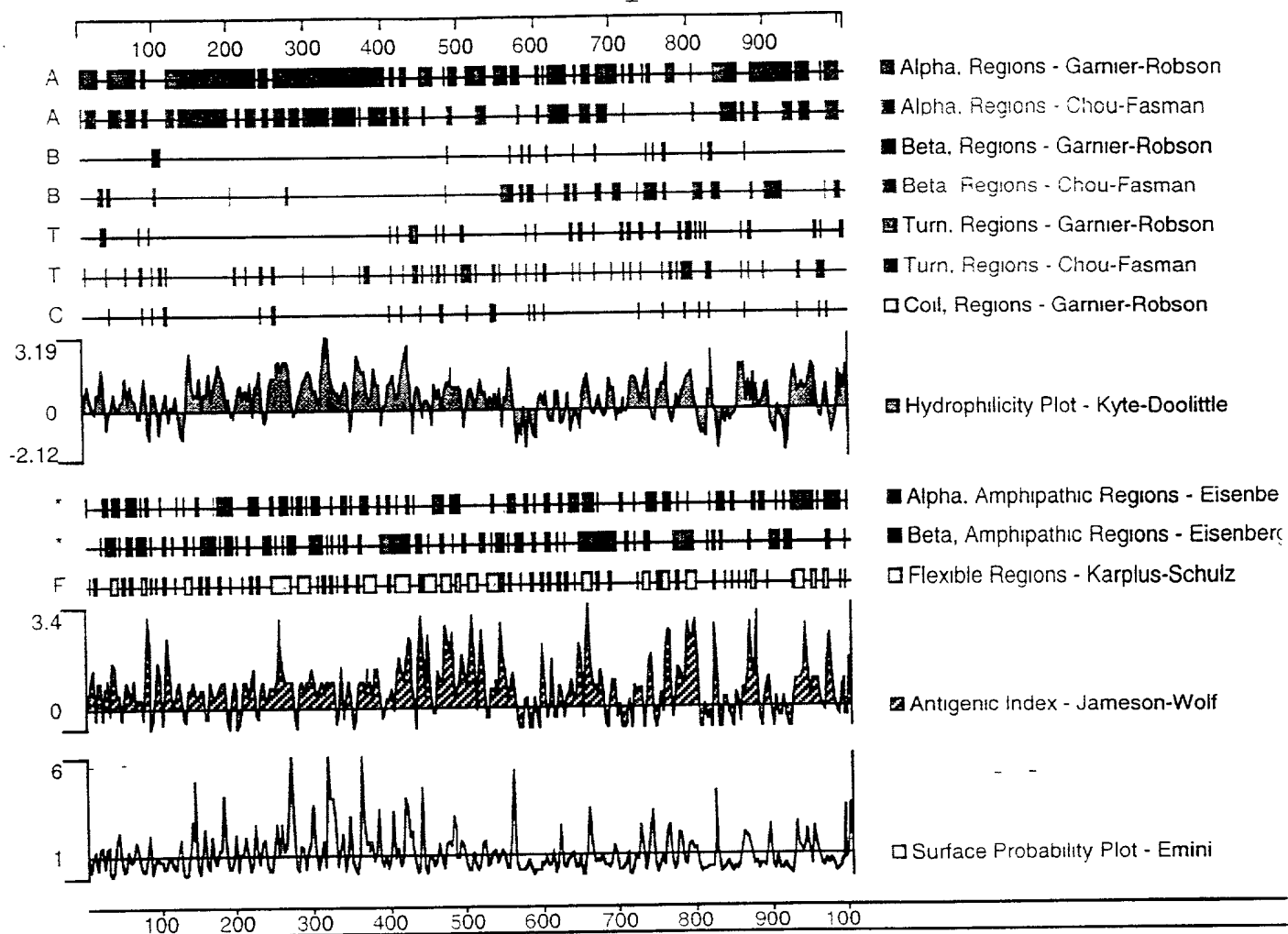


Fig. 4

CARD: domain 1 of 1, from 16 to 107: score -4.1, E = 0.94

\*->aeddrlllrknrllellgeltlsgllDhLleknvLteeeeeEkikaknt

+e + + +r + + +s l +L++++vL + +eE++ +

CARD14 16 EETLWEMMESHRHRIVRCICPSRLTPYLRQAKVLCQLDEEEVLHSPR 62

trr..dkareLiDsvqkkGnqAfqiFlqaLretdgelladlllde<-\*

+ + +a L+D +++++G + + +Fl++L+ + + + + +

CARD14 63 LTNSaMRAGHLLDLLKTRGKNGAIAFLES LKFHNPVYTLVTGLQ 107

Fig. 5A

PDZ: domain 1 of 1, from 568 to 659: score 5.3, E = 0.39

```
*->eitlekevkrsglGfsikggsdk..gfvsevlpGsgaAeagGrLke
++t+  ** 1 +i++ + + +gi++ +v pG +aA++  L++
CARD14 568 QVTMLAF-QGDALLEQISVIGGNltGIFIHRVTPG-SAADQMA-LRP 611

GDvIlsvNG.....qdvenmsheravlaikgsgg..evtLtlvRd<-
G +I+ v+ + +++ + +e+ ++e+av +++ g ++++v d
CARD14 612 GTQIVMVDyeaseplfkAVLEDTTLEEAVGLLRVDGfcCLSVKVNTD 659
```

\*

CARD14

Fig. 5B

SH3\_2: domain 1 of 1, from 679 to 744: score -4.5, E = 3.8

\*->eyvvAlYDyeaqnedELsFkkGDiiTVleks..ddgWweGelnr...

+y ++ + e++ +EL ++ +++++v++ ++ g w + + ++ +

CARD14 679 FYIRVNLAMEGRAKGEIQVHCNEVLHVTDTMfqGCGCWAHRVNsyt 725

...tGkeGlFpsnYVeeie<-\*

++t G +P + ++

CARD14 726 mkdTAAHGTIPNYSRAQQQ 744

Fig. 5C

---

**Guanylate\_kin:** domain 1 of 1, from 856 to 948: score -24.2, E = 0.073  
 \*->TRpVpRpgEvdGkdYhFVssrEemekdIaaneFlEygefqqnyYGTs  
 +++s Ee e+ ++++ + ge++g +

**CARD14** 856 --A-----EYLS-QEEYEAWSQRGDIIQEGEVSGGRCWVT 887

letvrqvakqgKiciLDvepQgvkrlrtaelsNPivvFIaPpSl..qe  
 +++v+ +++ ++LDv ++ v l + Piv+ + + + l+

**CARD14** 888 RHAVESLMEKNTHALLDVQLDSVCTLHRMDIF-PIVIHVSVNEKmakKLK 936

krLegrnkesEes<-\*  
 k L+++++ sEe+

**CARD14** 937 KGLQRLGT-SEEQ 948

---

Fig. 50

K-box: domain 1 of 1, from 239 to 325: score -36.5, E = 2.9

```
*->dsyqkssgnss..lwesnyqnwqqEaaKLkaqienLQnNrnqRhllG
s+ +++++ ++ +s++++ +E+++Lk++++e+L+ +
CARD14 239 VSSCELELQEQslRTASDQESGDEELNRLKEENEKLR--SL----- 277

EdLgsLslKELqqLEqqLEkgLkhIRsrKnqlllldgieelqkKERelqee
+ sl E LEq L+++ R + + l++ i+ l+ + + + +
CARD14 278 ----TFSLAEKDILEQSLDEA----RGSRQE-LVERIHSLRERAVAAERQ 318

NkaLrkKiee<-*
+ + +ee
CARD14 319 RE---QYWEE 325
```

Fig. 5E

1000  
600  
300  
0

CARD14-CARD/AD



Fig. 6



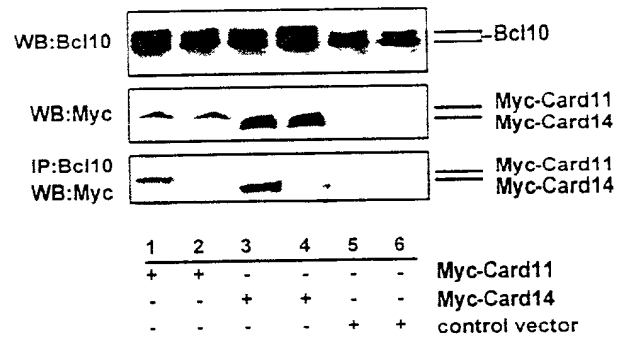


Fig. 7

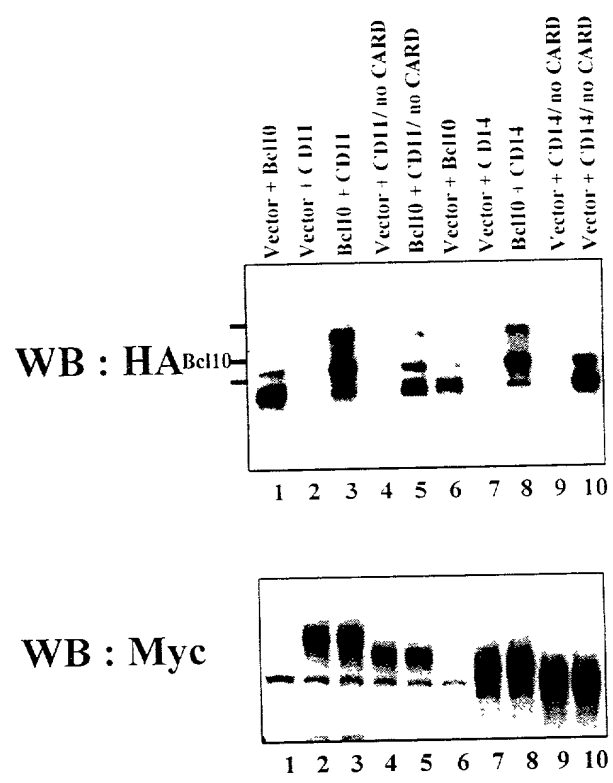


Fig. 8

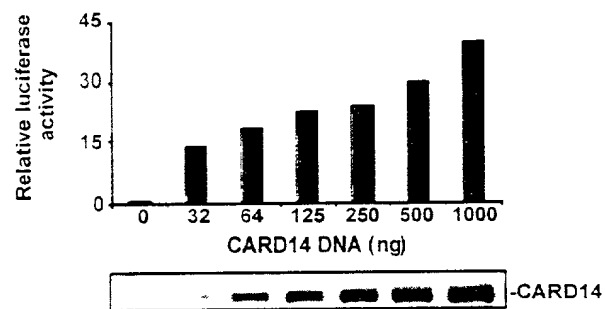


Fig. 9A

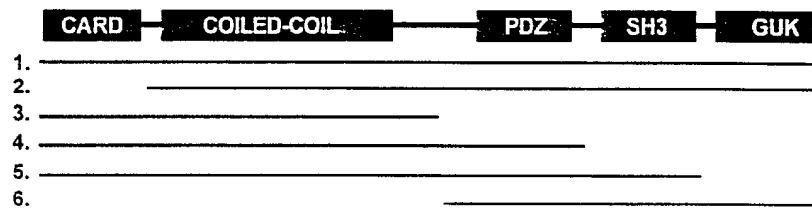


Fig. 9B

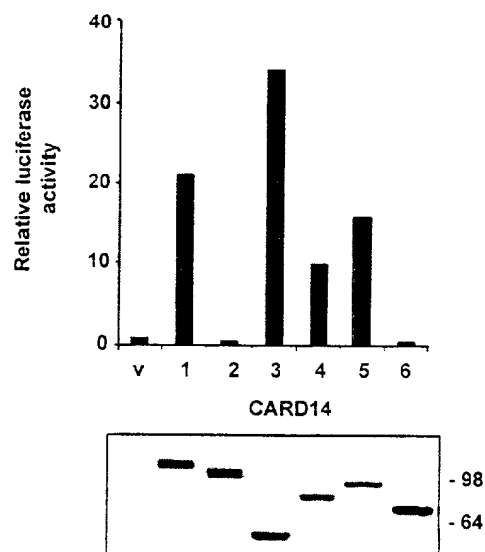


Fig. 9C